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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,027	03/30/2001	Jian J. Chen	2328-050	5541

7590 01/29/2003
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EXAMINER

CROWELL, ANNA M

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 01/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/821,027

Applicant(s)

CHEN ET AL.

Examiner

Michelle Crowell

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of invention Group II in Paper No. 5 is acknowledged. The traversal is on the ground(s) that inventions of claims 1-3 and 31-33 are not separate and distinct. This is not found persuasive because restriction is based on claims as originally filed. The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11-16, 25, and 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blalock et al (U.S. 6,095,159) in view of Kiyoshi et al. (Japanese Patent Publication 08-050998).

Referring to Figure 1 and 2, and column 3, line 44 – column 4, line 29, Blalock discloses an inductively coupled plasma generator 10 comprising a coil 34, a power supply 32 connected to coil 34, a variable capacitor 36 connected to the coil 34, and a control computer 42. The computer 42 controls the power source 32 and capacitor 36.

Application/Control Number: 09/821,027

Art Unit: 1763

Referring to column 3, line 63 – column 4, line 29, and column 4, lines 64-67, Blalock further teaches when a voltage is applied to coil 34, a standing wave is created across the coil 34. The point or points (location and value) of where maximum or minimum voltage (amplitude) occurs in the standing wave is determined by varying the value of the variable capacitor 36. Therefore, when voltage is applied to the coil and the variable capacitor is varied, variations of a substantial standing wave current or a constant substantial standing wave current occur along the length of the coil.

Blalock discloses the invention substantially as claimed, however fails to teach variable impedance arrangements and plural parallel connected windings.

Referring to Drawing 1 and the abstract, Kiyoshi teaches a plasma treatment apparatus which uses a plate coil unit 13 to ignite plasma. The plate coil unit 13 includes several plate coils 14, 15, 16, and 17 (plural parallel connected windings) which have variable capacitors 18 connected to the coils. The capacitance of the variable capacitors 18 and the current flow (total power) is adjusted accordingly so that uniformity of plasma is achieved in a vacuum container 10. Moreover, one coil can remain substantially constant while the current in another coil changes. The variable capacitors 18 are adjusted in order to increase magnetic flux density (electromagnetic fields) and to uniformly distribute flux density across the coils. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the coil unit of Blalock with multiple coils and capacitors as taught by Kiyoshi. By adjusting the variable capacitors connected to the coils, flux density is distributed uniformly across the coils.

Allowable Subject Matter

3. Claims 17, 18, and 21-23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
4. Claim 20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Response to Arguments

5. Applicant's arguments filed November 12, 2002 have been fully considered but they are not persuasive.

1. Applicant has argued that Blalock does not disclose a computer 42 for controlling the capacitor 36.

It is clear that Blalock is capable of controlling the variable capacitor, connected to the power supply 32, since the computer controls various components in the apparatus.

Art Unit: 1763

2. Applicant has argued that Blalock fails to disclose plural parallel connected windings.

Kiyoshi satisfies this requirement by teaching plural parallel connected coils 14, 15, 16, 17. Furthermore, it is well known that mere duplication of parts was held to have been obvious. (St. Regis Paper Co. v. Beemis Co. Inc. 193 USPQ 8, 11 (1977); In re Harza 124 USPQ 378 (CCPA 1960). For example, by providing plural parallel connected windings, the plasma area is extended and therefore processing of a larger sized substrate is achieved.

3. Applicant has argued that Blalock fails to disclose a controller for varying the total power.

The purpose of a process controller is to vary the desired parameters to yield optimum processing conditions. Therefore, the total power can be varied based on the inputs from the operator, hence Blalock teaches varying the total power. In addition, Kiyoshi satisfies this requirement by adjusting the variable capacitors and the current flow.

4. Applicant has argued that Blalock fails to disclose a source frequency and the lengths of the windings being such that there are no substantial standing wave current variations along the length of each winding.

A specific source frequency, winding length, and root mean square current are not commensurate with the claimed invention. Since Blalock is capable controlling the capacitor, frequency, and total output power, no substantial standing wave variations can be achieved and thus this result indicates a specified source frequency and winding length is applied.

Art Unit: 1763

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Crowell whose telephone number is (703) 305-1956. The examiner can normally be reached on M-F (8:00 - 4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Application/Control Number: 09/821,027

Page 7

Art Unit: 1763

AMC *amc*
January 27, 2003


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